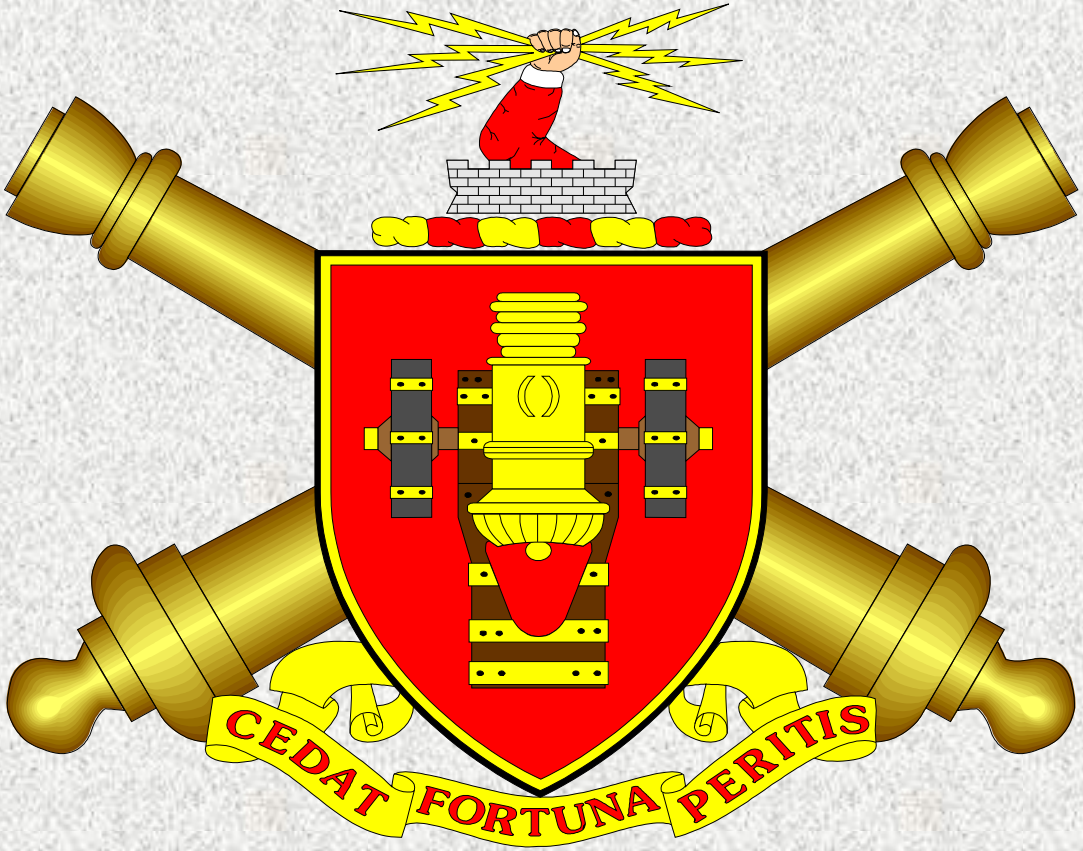
CAPTAIN'S CAREER COURSE



LESSON: FIELD ARTILLERY

TERMINAL LEARNING OBJECTIVE

- **ACTION: Identify Fire Support Systems, Organization and Role of Field Artillery in support of Combined Arms Operations.**
- **CONDITIONS: In a classroom, given FM 6-20 and a student handout,**
- **STANDARD: Identify fire support systems, organization and role of Field Artillery in support of Combined Arms Operations IAW FM 6-20.**

SAFETY, RISK, AND ENVIRONMENTAL CONCERNS

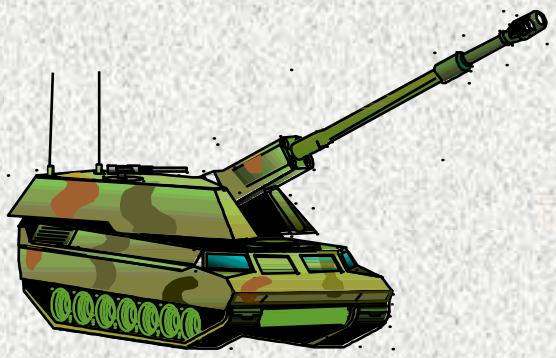
- **Safety Considerations: None**
- **Risk Assessment Level:**

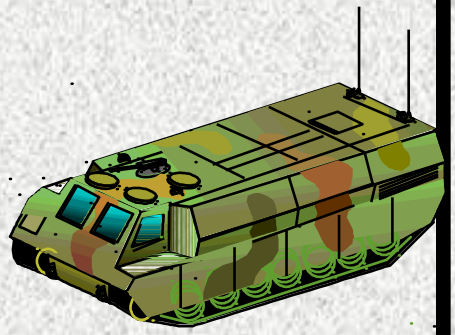
  Low
- **Environmental Considerations:**

  None

PRIMARY REFERENCES

- FM 6-20, Fire Support in the AirLand Battle
- FM 6-20-40, Tactics, Techniques, and Procedures for Fire Support for Brigade Operations
- FM 6-30, Tactics, Techniques, and Procedures for Observed Fire
- FM 6-71, Tactics, Techniques, and Procedures for the Combined Arms Commander



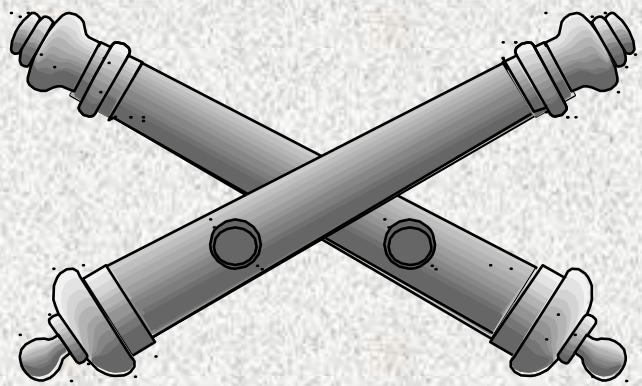


AGENDA

- Mission of field artillery.
- Roles of field artillery.
- Fire support organization.
- Ammunition.
- Artillery resources.
- Radars.
- Support relationships.
- Target types.

FIELD ARTILLERY MISSION

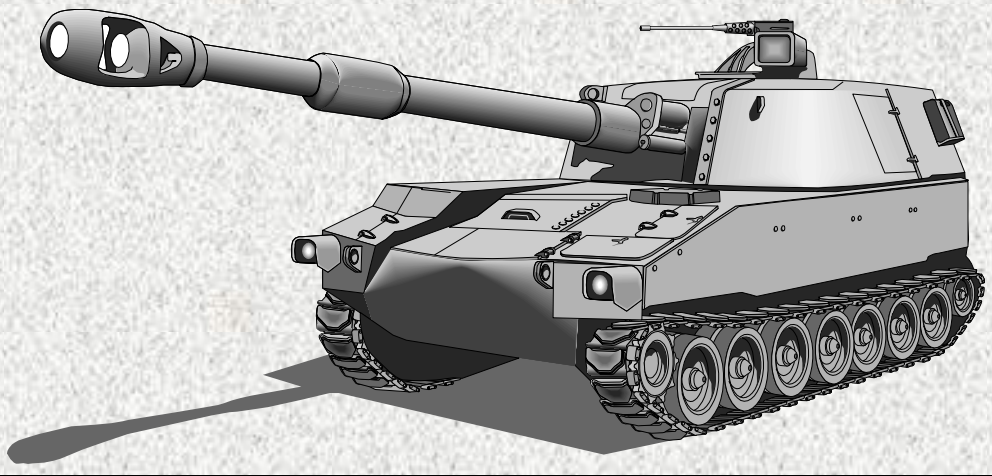
- **Destroy, neutralize or suppress the enemy by cannon, rocket and missile fire and to help integrate all fire support assets into combined arms operations.**



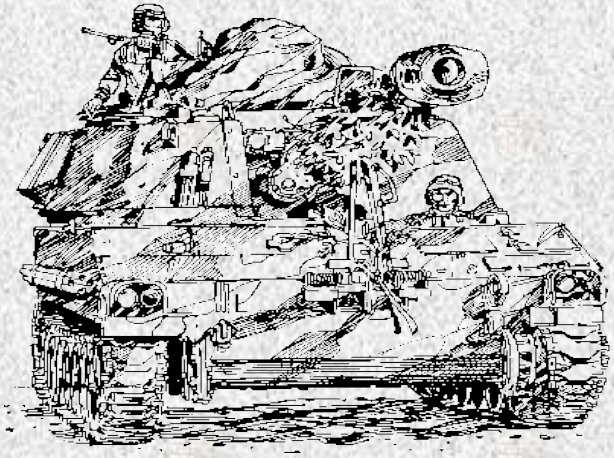
FM 6-20

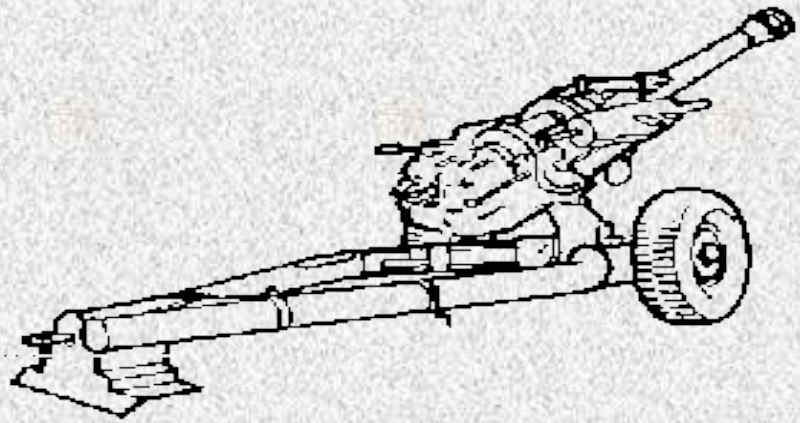
DESTROY

- **30% casualties or materiel damage renders unit ineffective.**
- **Target out of action permanently.**



NEUTRALIZE





- **10% casualties or materiel damage (12-24 hrs).**
- **Most FA missions are neutralization fires.**

SUPPRESS

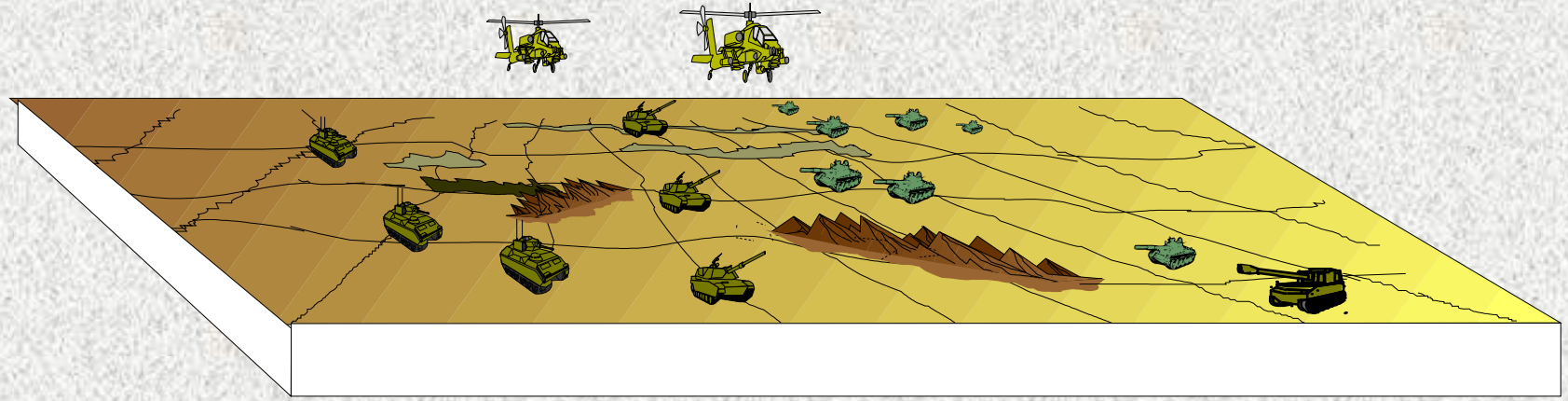
- Limits enemy's performance.
- Effective as long as the fires continue.
- Low expenditure of ammunition.

HARASS

- Disturb rest.
- Curtail enemy movement.
- Lower morale.

ROLES

- Close support fires.
- Counter-fires.
- Interdiction fires/SEAD.



FIRE SUPPORT ELEMENT

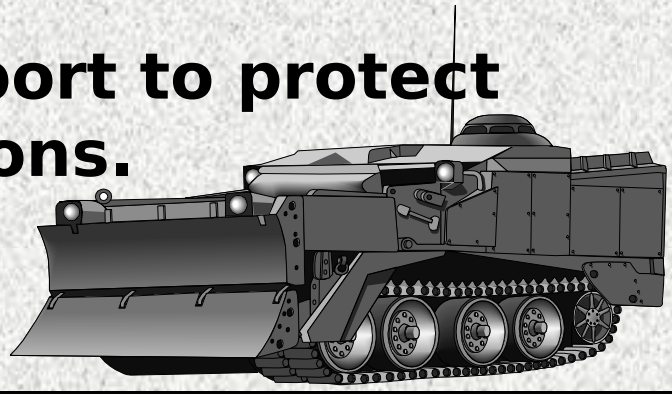
- FSE at battalion, brigade, division, and corps levels.
- FSE at battalion level consists of:
  - → Battalion fire support officer.
  - → Mortar platoon leader.
  - → Air Defense officer
  - → Chemical officer.
  - → Engineer.
  - → TACP.
  - → S3 Air.
  - → SALT.

BN FSO DUTIES

- Advise maneuver battalion commander (BN FSCOORD).
- Plans and coordinates indirect fires and CAS.
- Writes/disseminates fire support plan and matrix.
- Trains FSE and company FSOs.

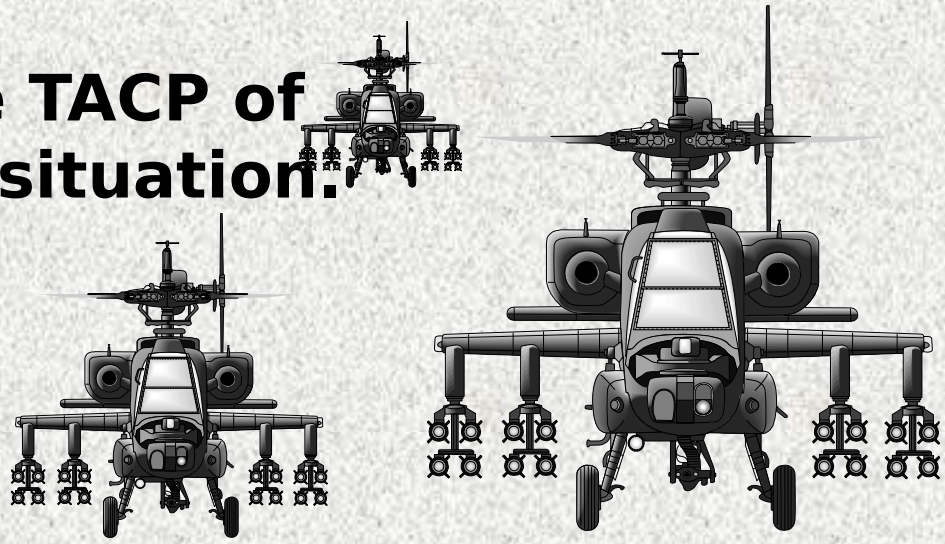
TF ENGINEER

- **Responsible for the tactical planning and employment of FASCAM minefields.**
- **Coordinates with the FSO for the firing of FA FASCAM and integration of indirect fires with the obstacle plan.**
- **Coordinates for fire support to protect critical engineer operations.**



S3 AIR

- Receives, coordinates, and processes all CAS requests.
- Battalion POC for Army Aviation requests.
- Advises Air Force TACP of ground tactical situation.



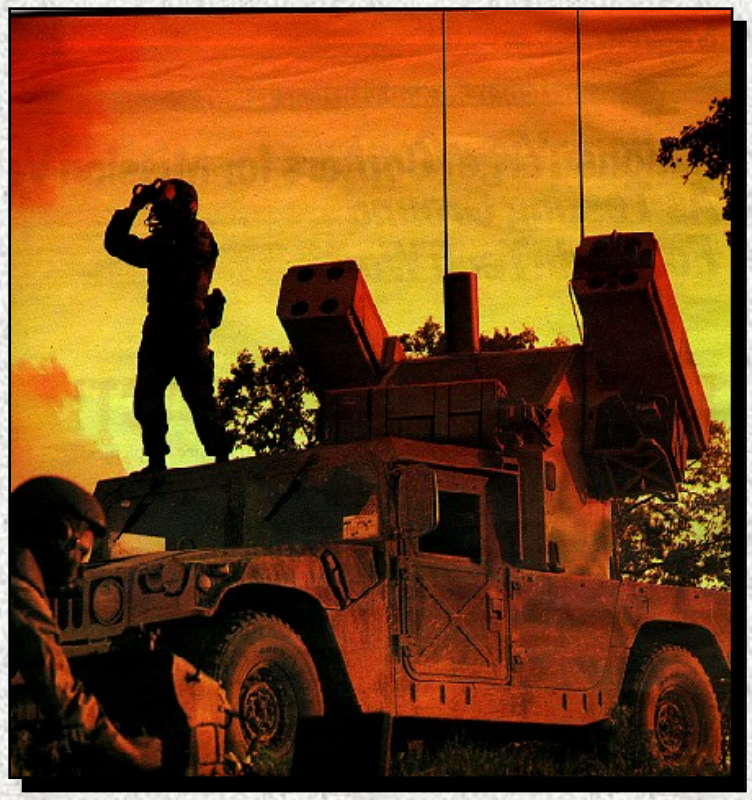
MORTAR PLT LEADER

- **Determines mortar positions and maintains ammunition status.**

- **Seeks survey and/or MET data support from the FSO.**

ADA OFFICER

- **Provides status of ADA assets.**
- **Coordinates airspace control.**

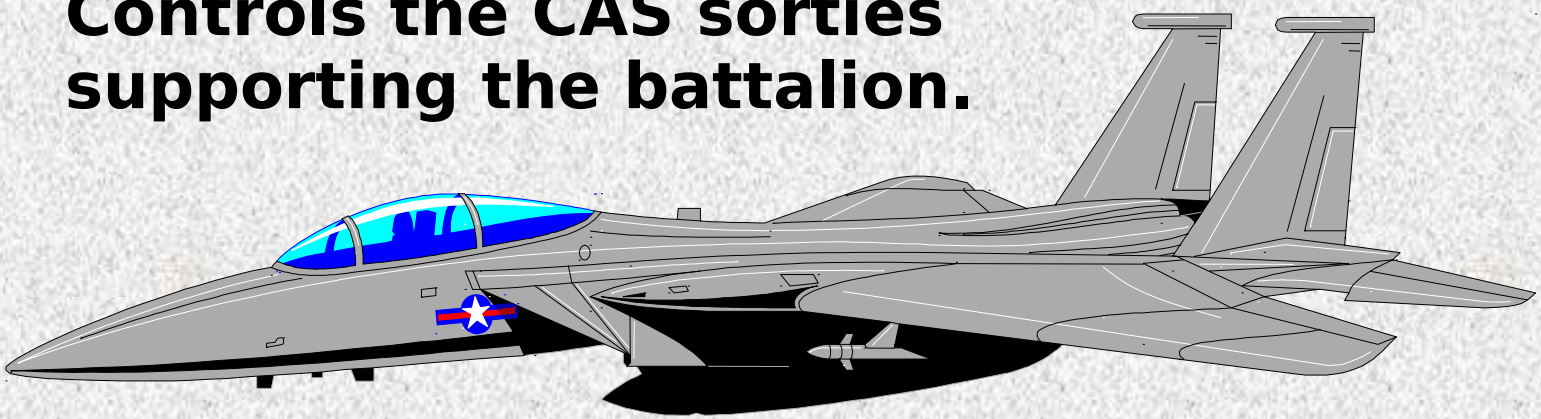


CHEMICAL OFFICER

- **Advises on effects of friendly and enemy NBC attacks.**
- **NBC warning and reporting.**
- **Use of smoke.**

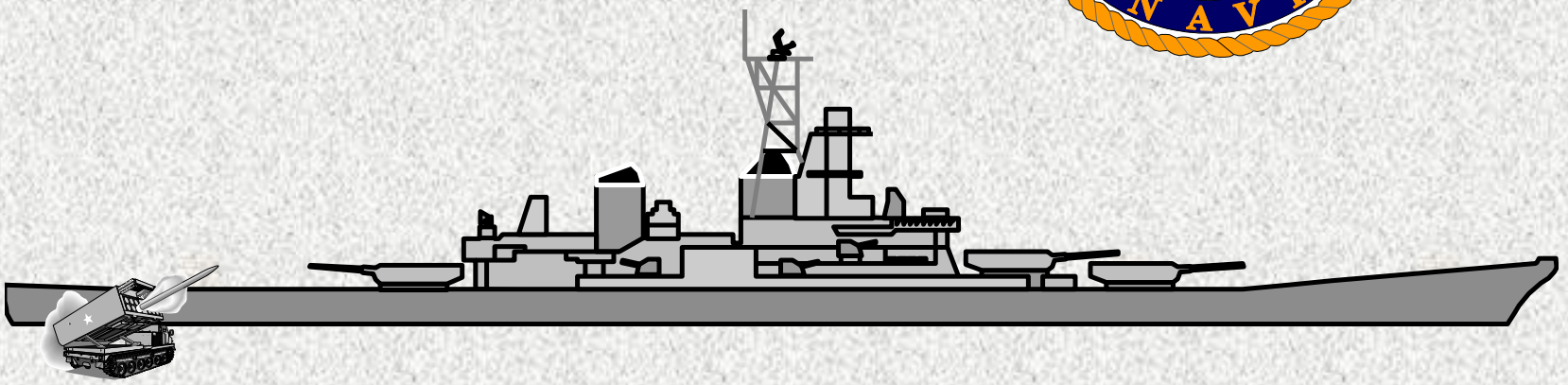
TACTICAL AIR CONTROL PARTY (TACP)

- Advises on capabilities and limitations of TACAIR.
- Processes TACAIR requests through Air Force channels.
- Controls the CAS sorties supporting the battalion.

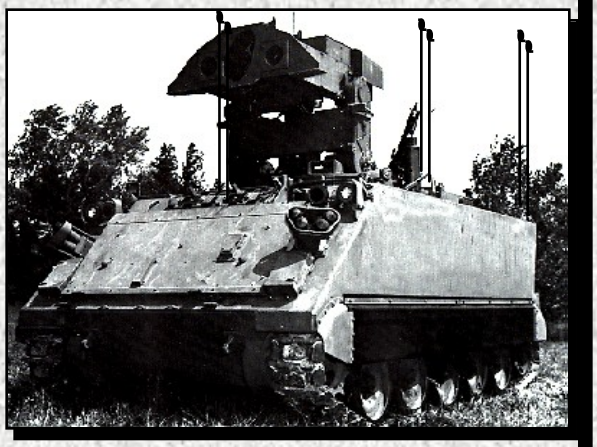


SUPPORTING ARMS LIAISON TEAM (SALT)

- **Advises on Naval gunfire information and characteristics.**



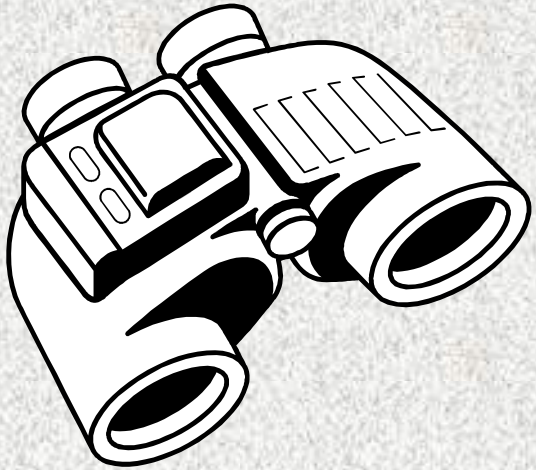
FIST - FIRE SUPPORT TEAM



- **Armor units FIST:**
  - → **Fire Support Officer - LT.**
  - → **Fire Support SGT - SSG.**
  - → **Fire Support SPC - SPC.**
  - → **RTO - PFC.**
- **Light Infantry FIST:**
  - → **All of the above personnel plus…**
  - → **Forward observer party consisting of a SGT and a PFC as the RTO.**

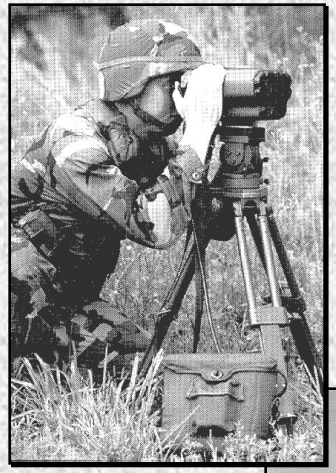
COLT - COMBAT OBSERVATION LASING TEAM

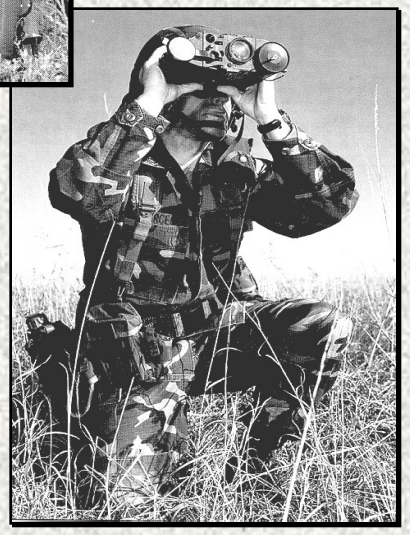
- **Armored and mechanized infantry divisions.**
- **Six COLT teams per maneuver brigade.**
- **Each team consists of:**
  - **Team Chief - E5.**
  - **Fire support SPC.**
  - **RTO - E3.**



RANGEFINDERS

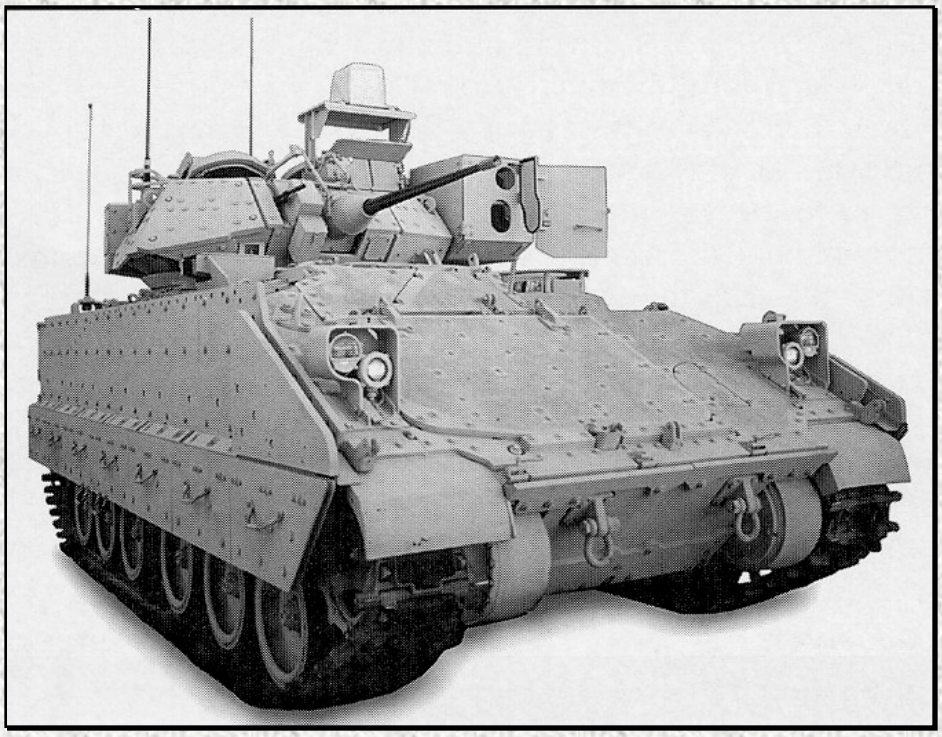
- **LLDR - Lightweight Laser Designator Rangefinder.**
  - → **Range - 10 km.**
  - → **Weight - 35 lbs.**
  - → **Fielded FY 2001.**
- **AN/GVS-5 - Laser Range Finder.**
  - → **Range - 10 km.**
  - → **Weight - 5 LB**



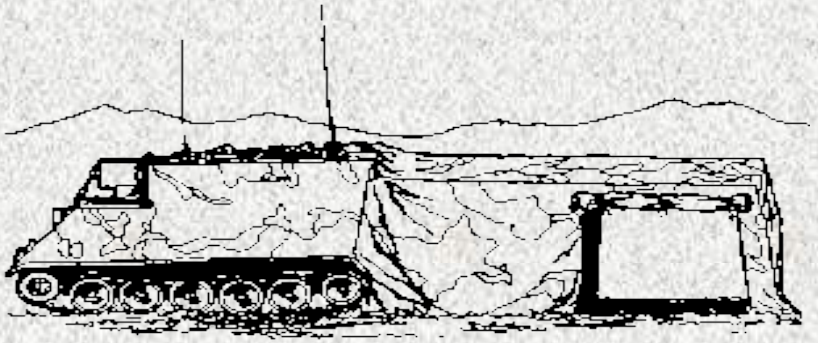


M7(M2A2)

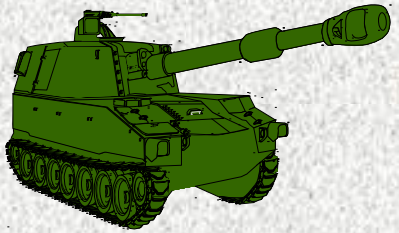
- **BFIST - “Thunderstrike” .**
- **Fielded FY 1999.**
- **3rd ID, FT Stewart, Georgia.**



FIRE PLANNING



FSE with BN HQS



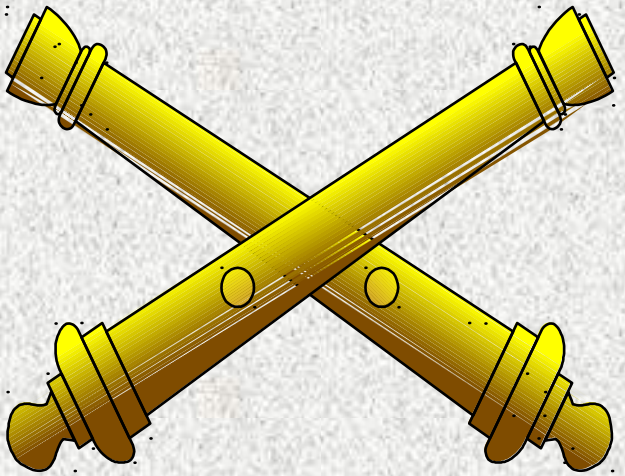
FDC with Guns

You

Fist

AMMUNITION

- High Explosive (HE).
- Improved Conventional Munition (ICM).
- Smoke.
- Illumination (ILLUM).
- Precision.



105MM MUNITIONS HIGH EXPLOSIVE, ROCKET-ASSISTED (HERA)

Provides extended range to light forces.

Munition	Range	Container	Max Charge	Status
M913	11.5-19.5 km (M119 only)	PA117 (New metal canister)	8	Fielded
XM927	7.5 - 17 km (All 105 MM)		7	No Production Date Set

- 1.8 times the effectiveness of the M1 HE.

M795 HE

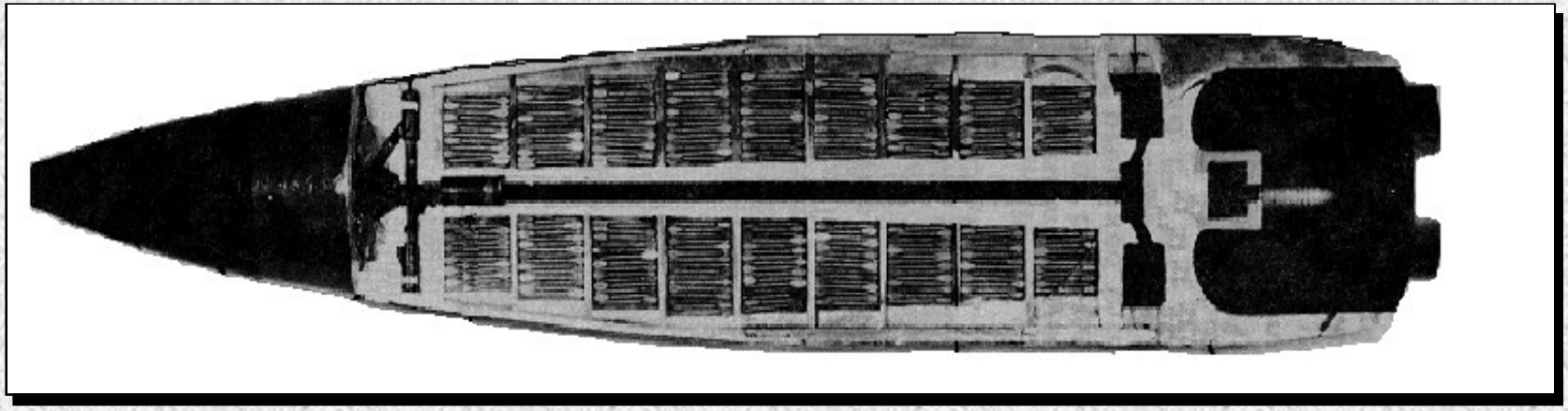
Munition	Range	Payload	Max Charge	Status
M109 A2/A3	17.7 km	TNT High Explosive / High Frag	8 Red	Fielded
M109 A5/A6 M198	22.5 km		8 Red	

- Registration round for M483 family.

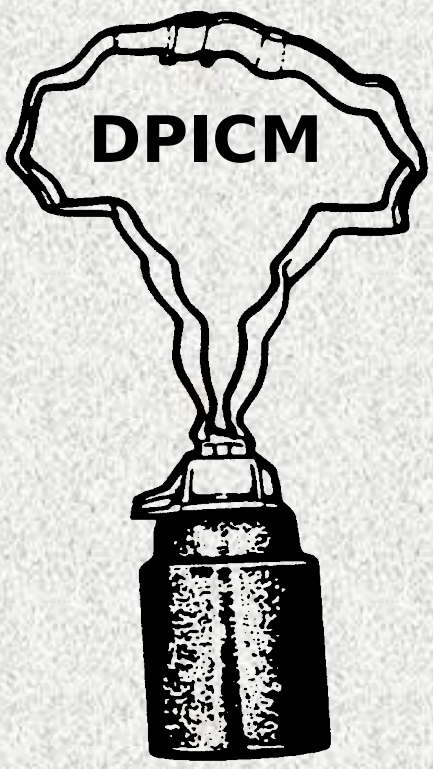
Increases 155MM HE range 32% to 22.5 km.

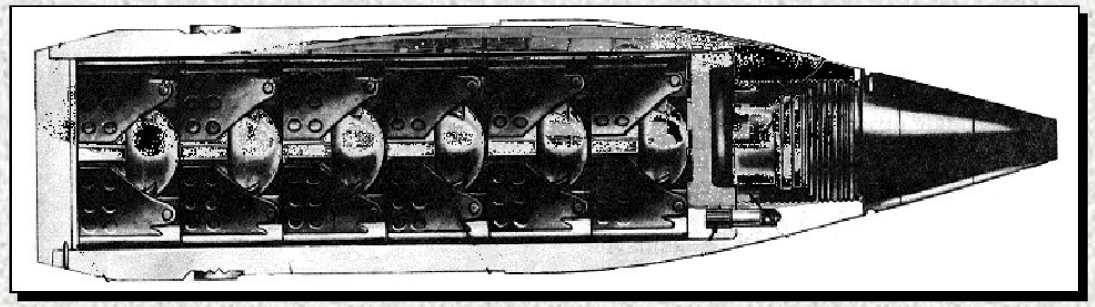
ANTIPERSONNEL BEEHIVE

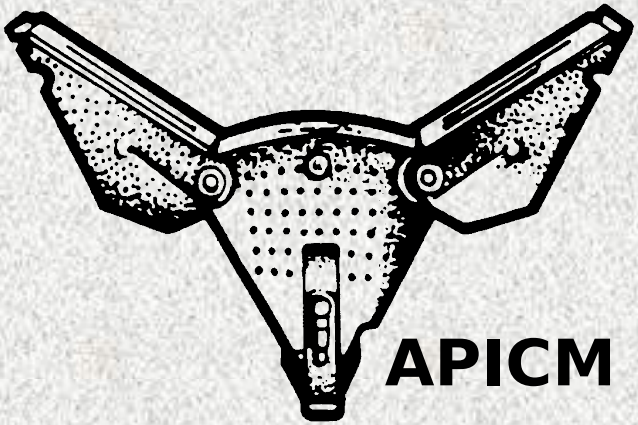
- **Killer Junior.**



IMPROVED CONVENTIONAL MUNITIONS (ICM)

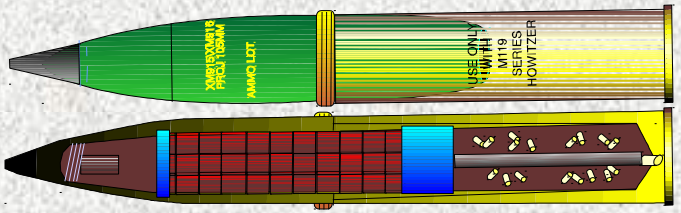






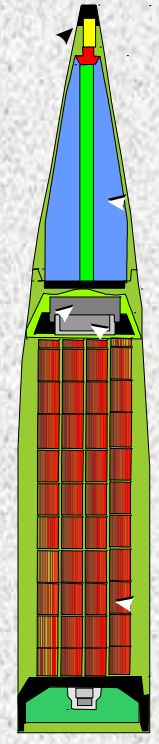
DUAL-PURPOSE IMPROVED CONVENTIONAL MUNITION

Enhances lethality of light forces.



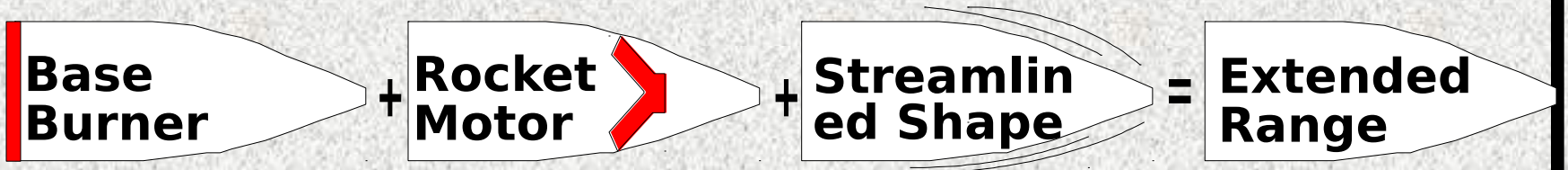
Munition	Range	Container	Max Charge	Payload
XM915	10-14 km (M119 only)	PA117 (New metal canister)	8	42 XM80 Grenades (w/self-destruct)
XM916	3-11 km (All 105 MM)		7	

XM982 EXTENDED RANGE DPICM PROJECTILE

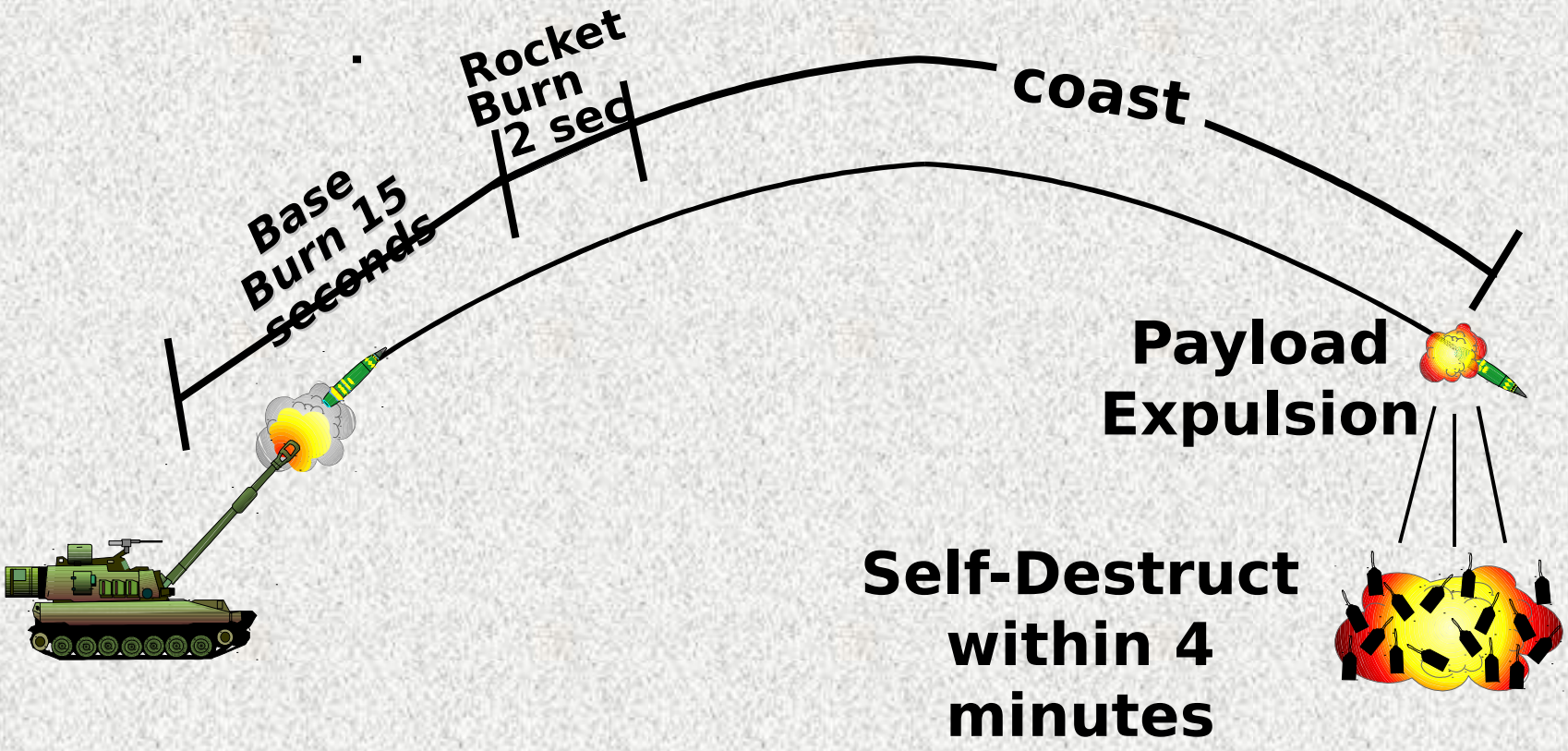


- **Characteristics:**
  - **155MM projectile.**
  - **Extended range.**
  - **Greater accuracy.**
  - **Increased reliability.**
  - **Self-destruct mode.**
  - **"Wooden round".**
  - **Compatible with M109 series, M198, and Crusader.**

= US survivability.

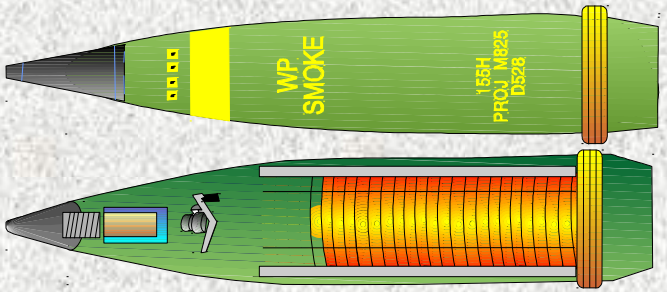


XM982 EXTENDED RANGE DPICM PROJECTILE



M825A1 WHITE PHOSPHORUS SMOKE

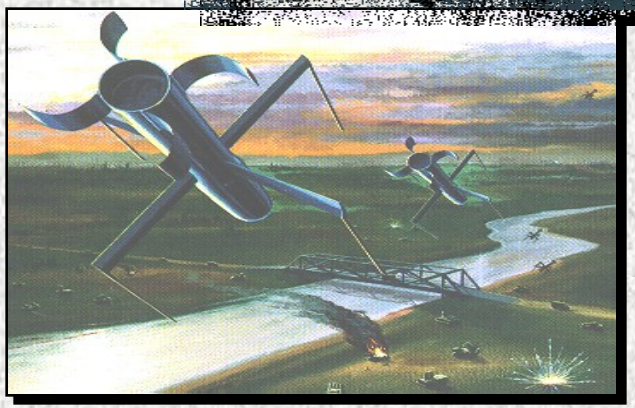
Provides restriction free smoke up to 22 km.



Munition	Range	Payload	Max Charge	Status
M109 A2/A3	4.5-17.5 km	116 WP-SATURATED FELT WEDGES	8 Red	Fielded
M109 A5/A6 M198	4.5-22.5 km		8 Red	

PRECISION

- Copperhead.
- Selected Armor Defeating Artillery Munitions (SADARM).
- Brilliant Anti-Armor Submunition (BAT).



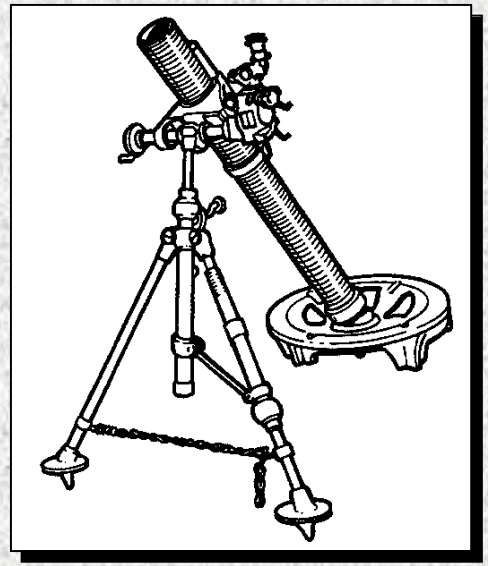
RESOURCES

- Mortars.
- Field artillery.
- Naval gunfire.
- Tactical air.
- Army aviation.
- Electronic warfare.

LIGHT MORTARS

- 60MM.
- Two per light infantry company.
- Six per light infantry battalion.

- 81MM.
- Four per light infantry battalion.

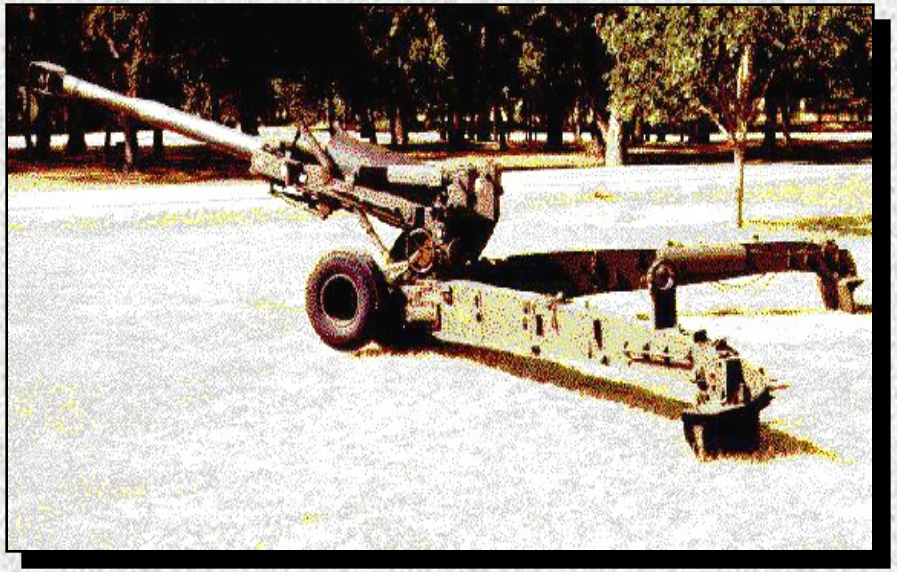


M119

- 105MM, towed.
- Eighteen per light artillery battalion (3x6).

M198

- 155MM, towed.



M109A5

- 155M, SP.

M109A5

M121

- 120 MM mortar.
- Six per heavy task force.

M109A6 (PALADIN)

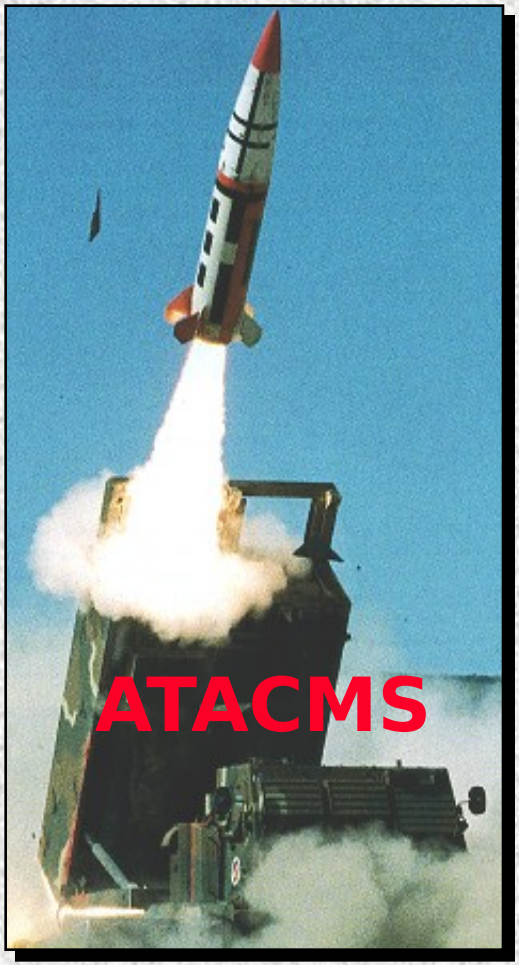
- M109A6, 155mm, SP.
- Equipped with a modular azimuth position system (MAPS).

PALADIN

MLRS

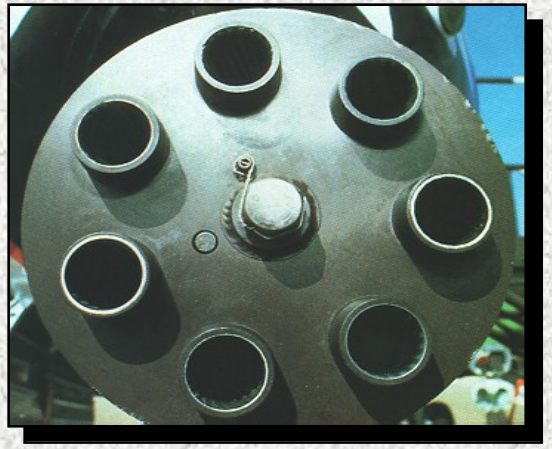
HIGH MOBILITY ARTILLERY ROCKET SYSTEM (HIMARS)

- **Support light divisions (C-130).**



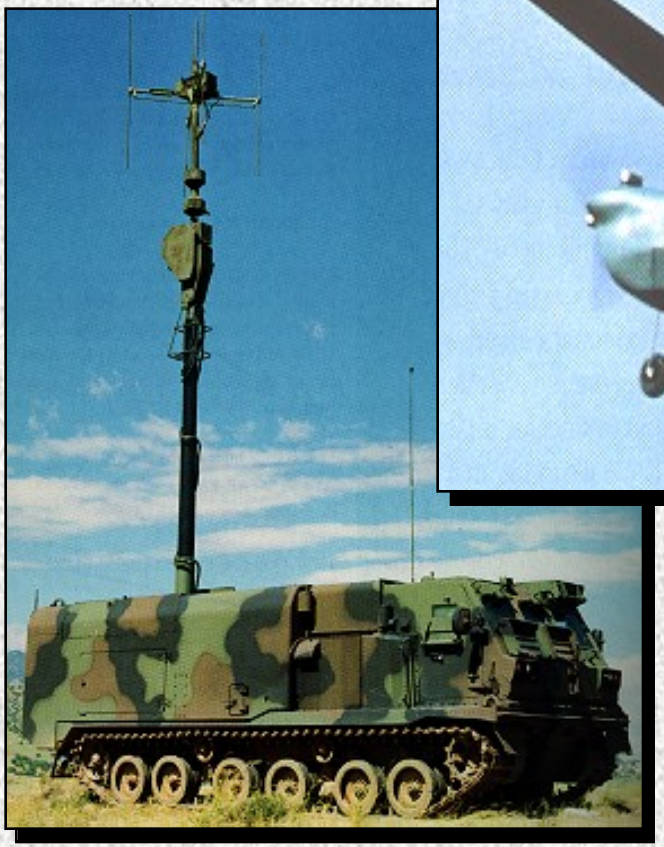
NAVAL GUNFIRE

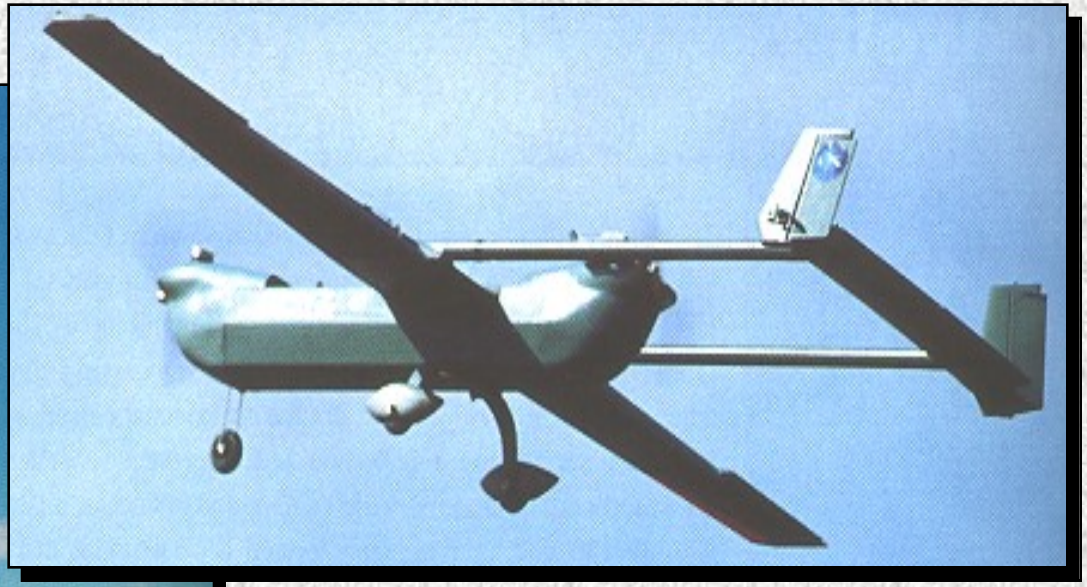
TACTICAL AIR - A10



ARMY AVIATION - HELLFIRE

ELECTRONIC WARFARE

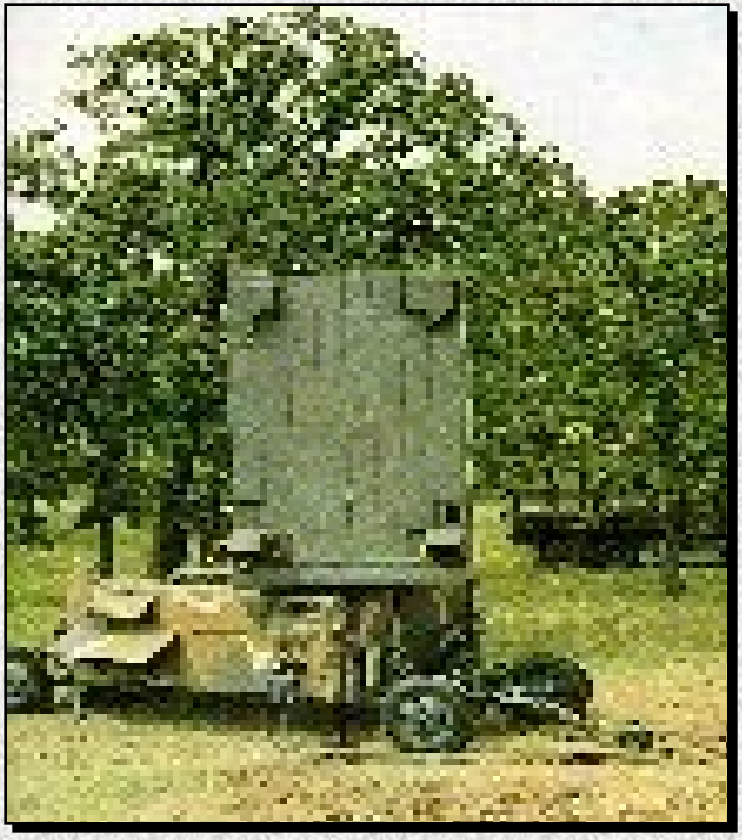




AN/TPQ-36

- Locates short-range, high-angle weapons, also artillery and rockets.
- Range of 12 km artillery and mortars, 24 km rockets.
- Located 3-6 km behind FLOT.

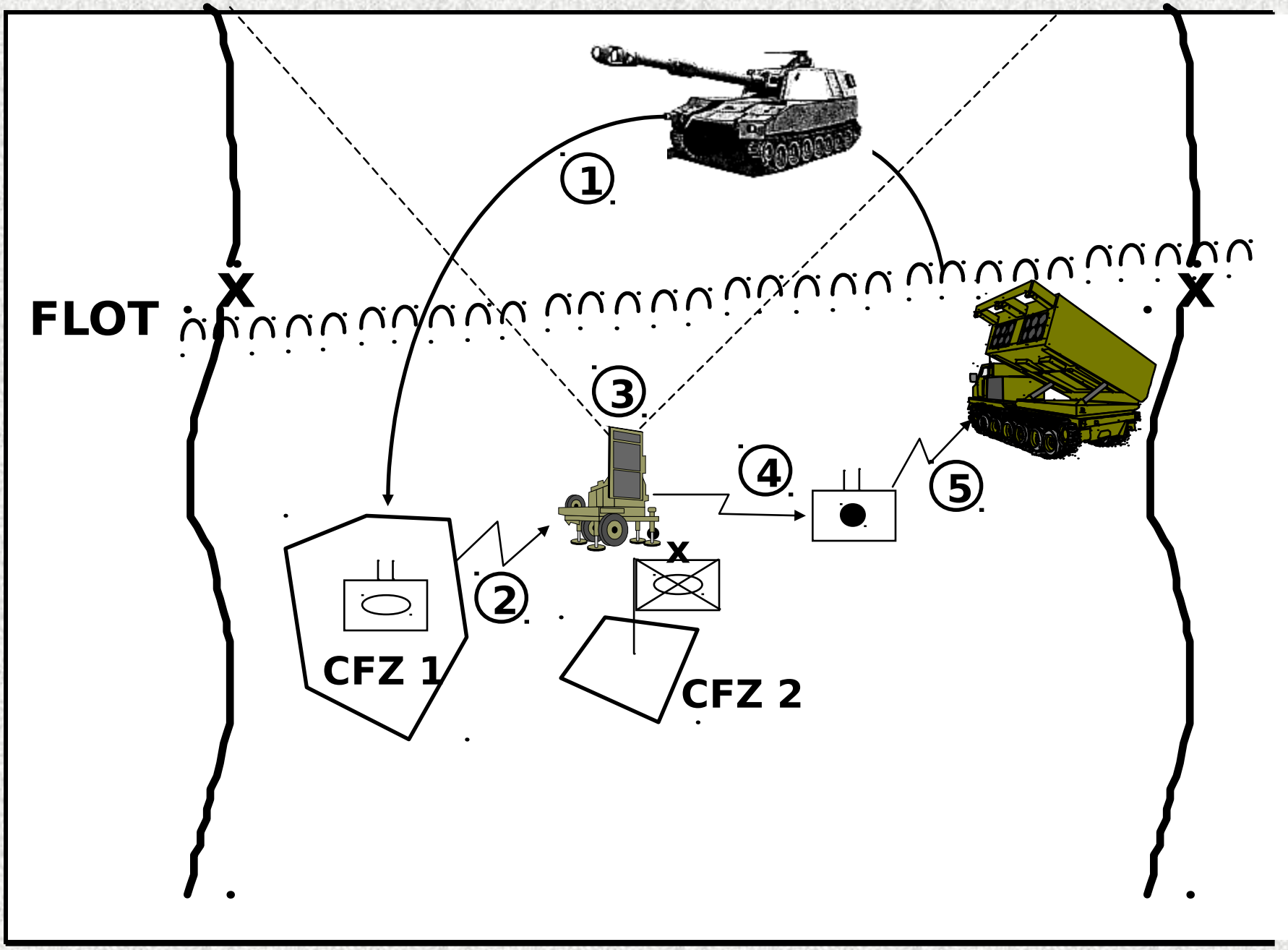
AN/TPQ-37



- **Locates long-range, low-angle weapons.**
- **Range of 30 km artillery, 50 km rockets.**
- **Located 8-12 km behind FLOT.**

RADAR ZONES

- **Critical friendly zone:**
  - **Area, usually a friendly unit or location, the maneuver commander designates as critical.**
  - **Priority 1 message for FA is generated.**
- **Call-for-fire zone:**
  - **Search area, forward of the FLOT, the maneuver commander wants destroyed, neutralized, or suppressed.**
  - **Priority 2 (may upgrade 1) message.**


FLOT
X
X
1
2
3
4
5
CFZ 1
CFZ 2
X

RADAR ZONES

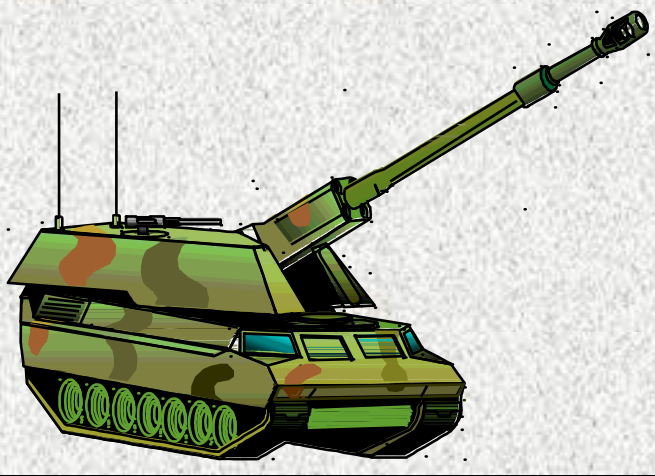
- **Artillery target intelligence zone:**
  - → **Area in enemy territory the maneuver commander wants to monitor.**
  - → **Target report message is generated.**
- **Censor zone:**
  - → **Area the maneuver commander wants to ignore all target detections.**
  - → **Example: to protect friendly artillery/mortar units.**

SUPPORT RELATIONSHIPS

- **Direct Support (DS).**
- **Reinforcing (R).**
- **General Support Reinforcing (GSR).**
- **General Support (GS).**

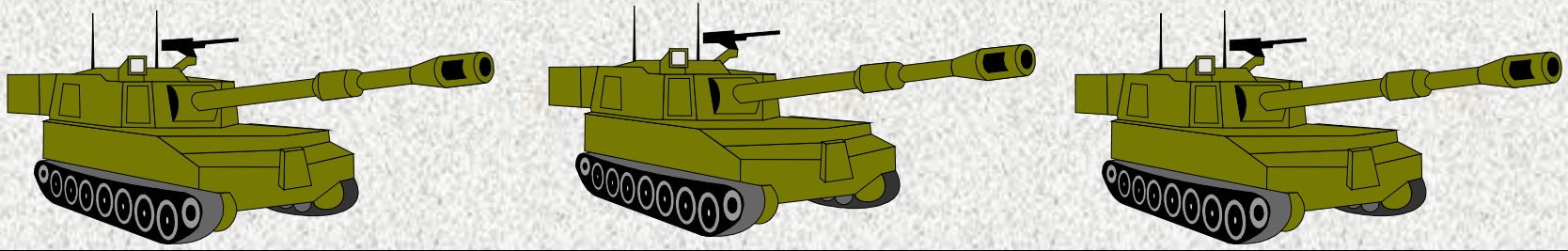
DIRECT SUPPORT (DS)

- **In support of a maneuver brigade, prioritize with the Field Artillery the needs of supported brigade only.**
- **Most decentralized of the standard tactical missions.**



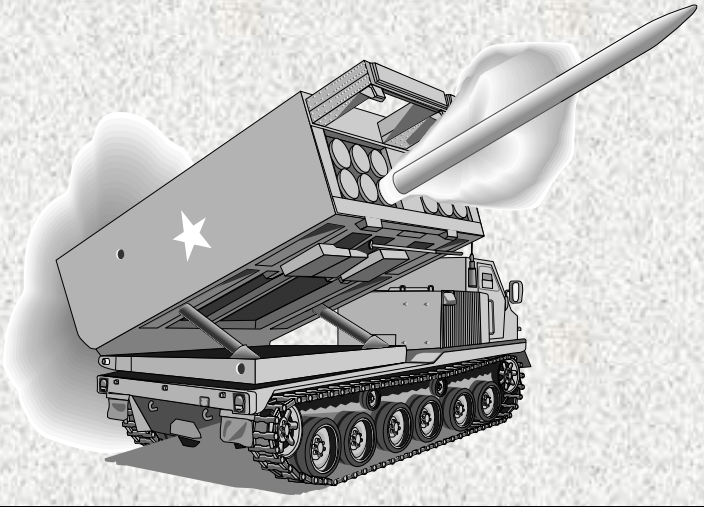
REINFORCING (R)

- One field artillery battalion to augment the fires of another Field Artillery battalion.
- A field artillery battalion may only reinforce one direct support battalion.
- First priority is to the reinforced unit.



GENERAL SUPPORT REINFORCING (GSR)

- **Under control of the force Field Artillery HQs.**
- **Second priority is to reinforce the fires of a direct support battalion.**

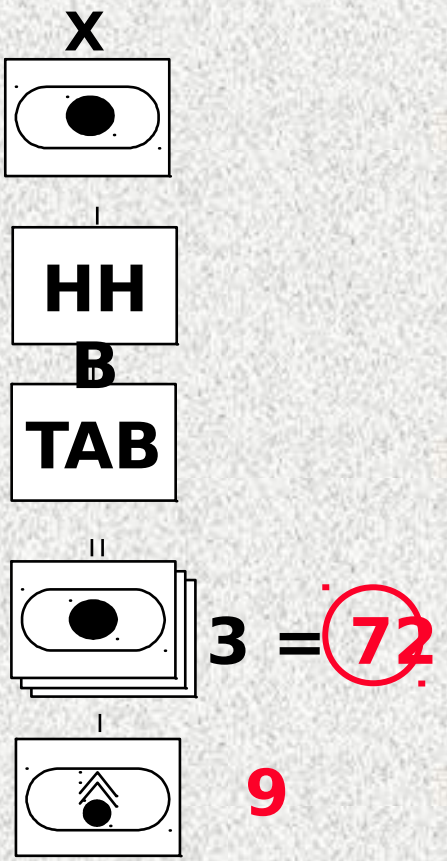


GENERAL SUPPORT (GS)

- **Supports the force as a whole.**
- **Immediately responsive to the needs of the force commander.**
- **Most centralized of the standard tactical missions.**

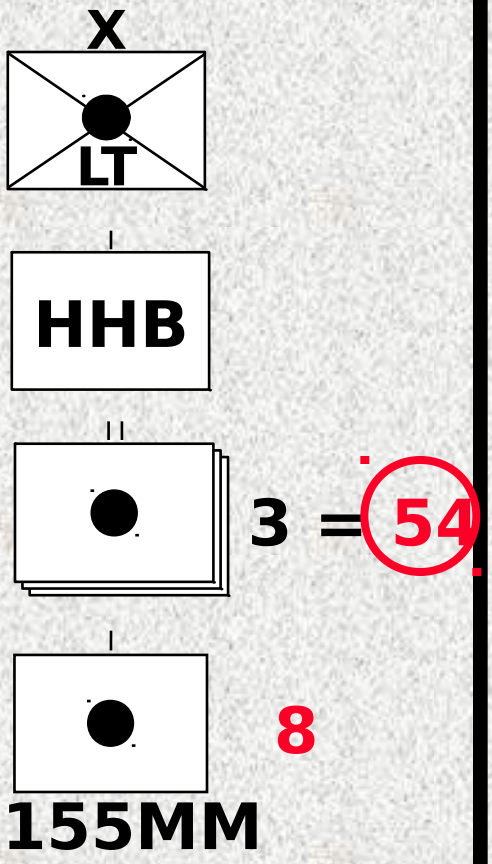
ARMOR/MECHANIZED INFANTRY DIVISION

- **Radar:**
  - → **Q37 - 2.**
  - → **Q36 - 3.**
- **M109, 155MM (3x8).**
- **MLRS Battery.**



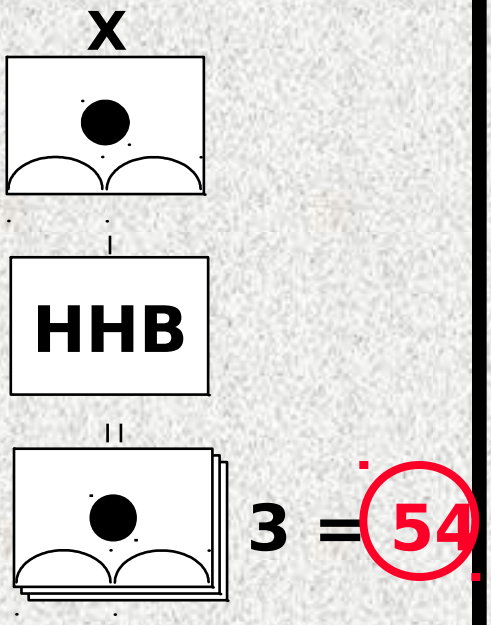
LIGHT INFANTRY DIVISION

- M119, 105MM (3X6).
  M198, 155MM (8 guns).
  Each direct support battalion has one (1) Q-36 Radar.
- No MLRS.

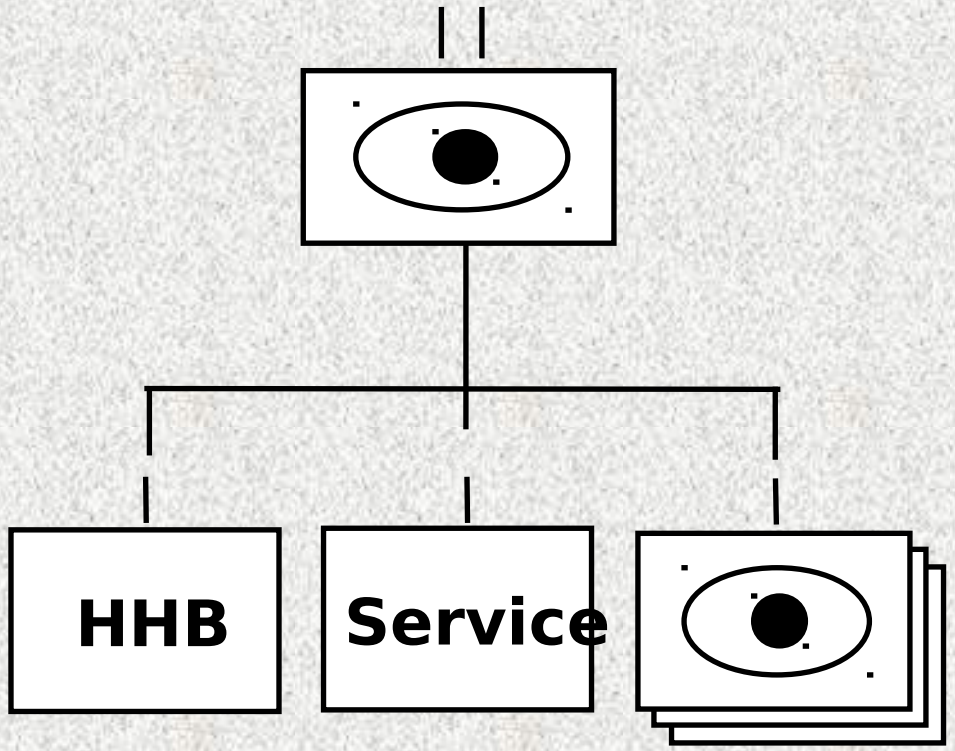


AIRBORNE/AIR ASSAULT DIVISION

- M119, 105MM (3X6).
- No organic radar.
- No 155MM or MLRS.
- Units having 155MM capability are assigned from corps.



FIELD ARTILLERY BATTALION (DS)



FUNDAMENTALS OF ORGANIZATION FOR COMBAT

- **Adequate Field Artillery for command forces.**
  - → **Brigade control: 1-5 FA (155, SP) (DS).**
- **Weight main effort.**
  - → **2-636 FA (155, SP) (R 1-5 FA).**
- **Facilitate future operations.**
  - → **4-5 FA (155, SP) (%R 1-5 FA).**
- **Field Artillery capability immediately available for commander to influence the action.**
  - → **B/6 FA (MLRS) (GSR 1-5 FA).**
- **Maximum feasible, centralized control.**
  - → **Defense: Centralized.**
  - → **Offense: Decentralized.**

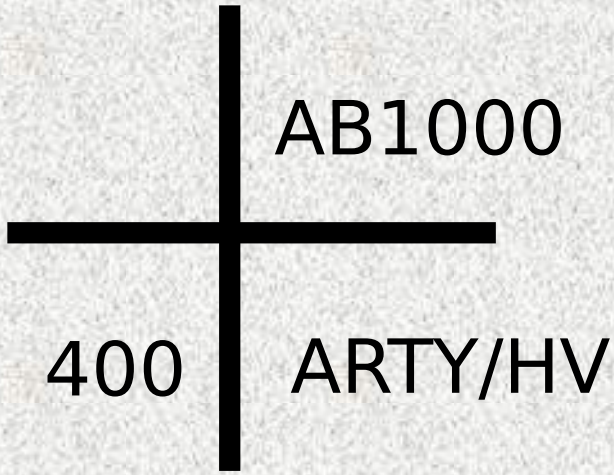
TARGET TYPES

- **Target of opportunity - target appears during combat; fires are not planned.**
- **Planned target - a target which fire is preplanned.**

PLANNED TARGETS

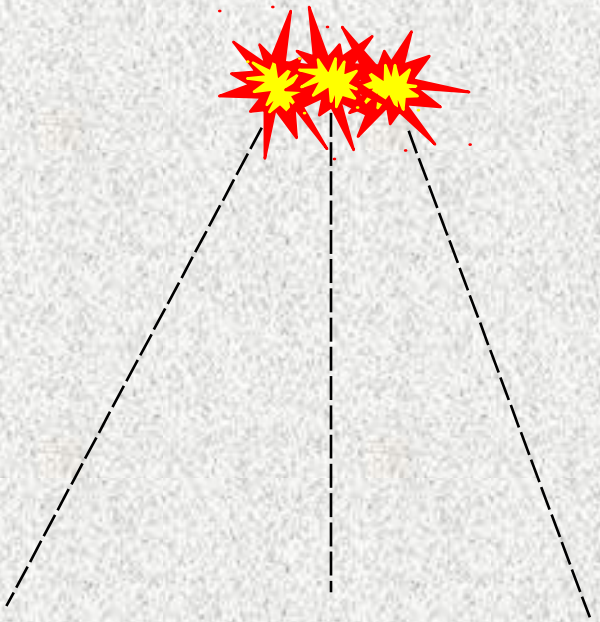
- **Scheduled target.**
- **On-call target.**
- **Priority target.**
- **Final protective fire.**

POINT TARGET

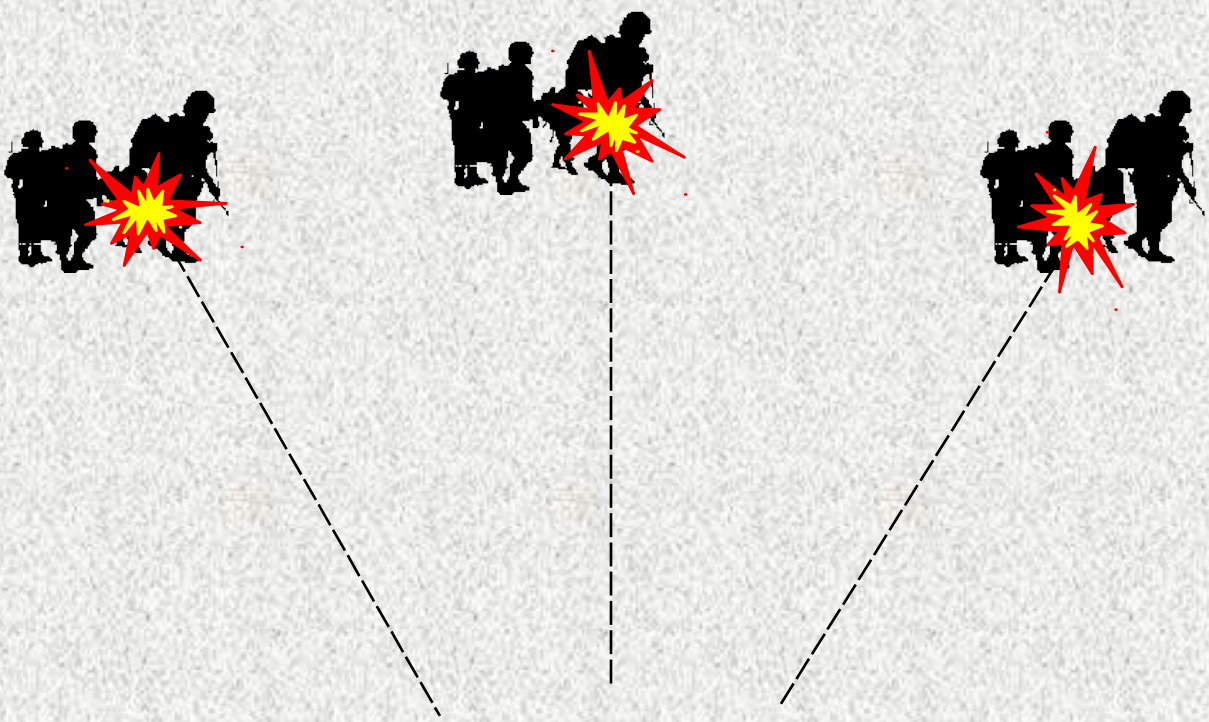


Less than 200 meters wide.

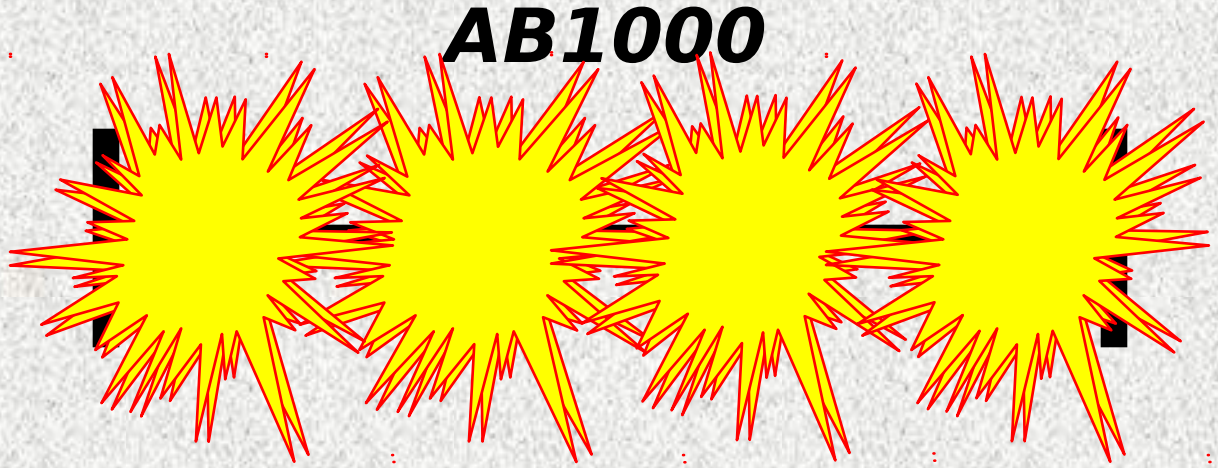
CONVERGE SHEAF



OPEN SHEAF



LINEAR TARGET



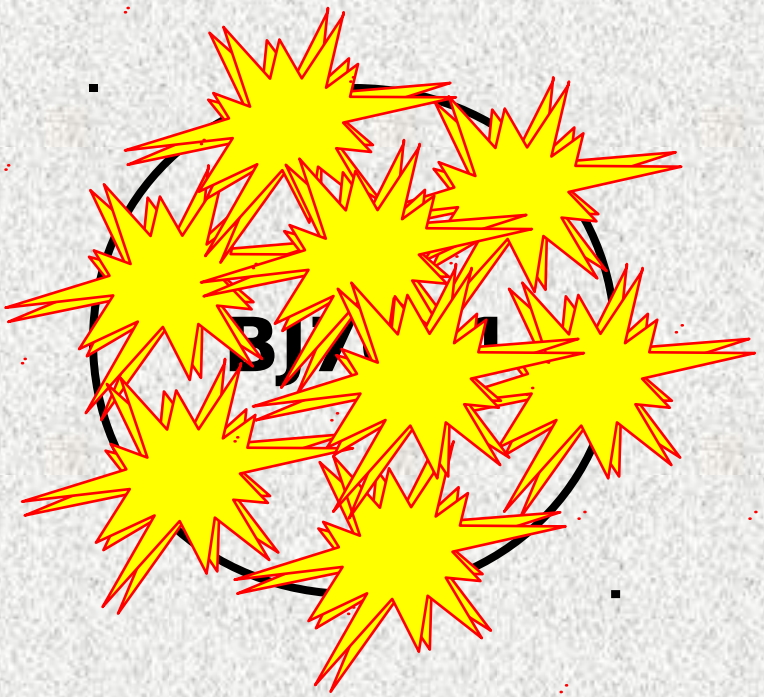
250-500 meters

RECTANGULAR TARGET

KJ2000

Wider and longer than 250 meters.

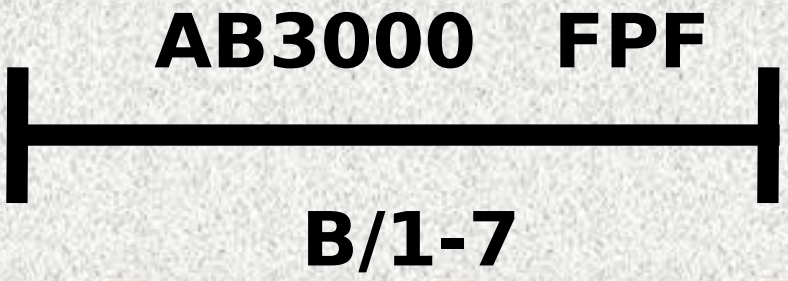
CIRCULAR TARGET



Center grid and a radius.

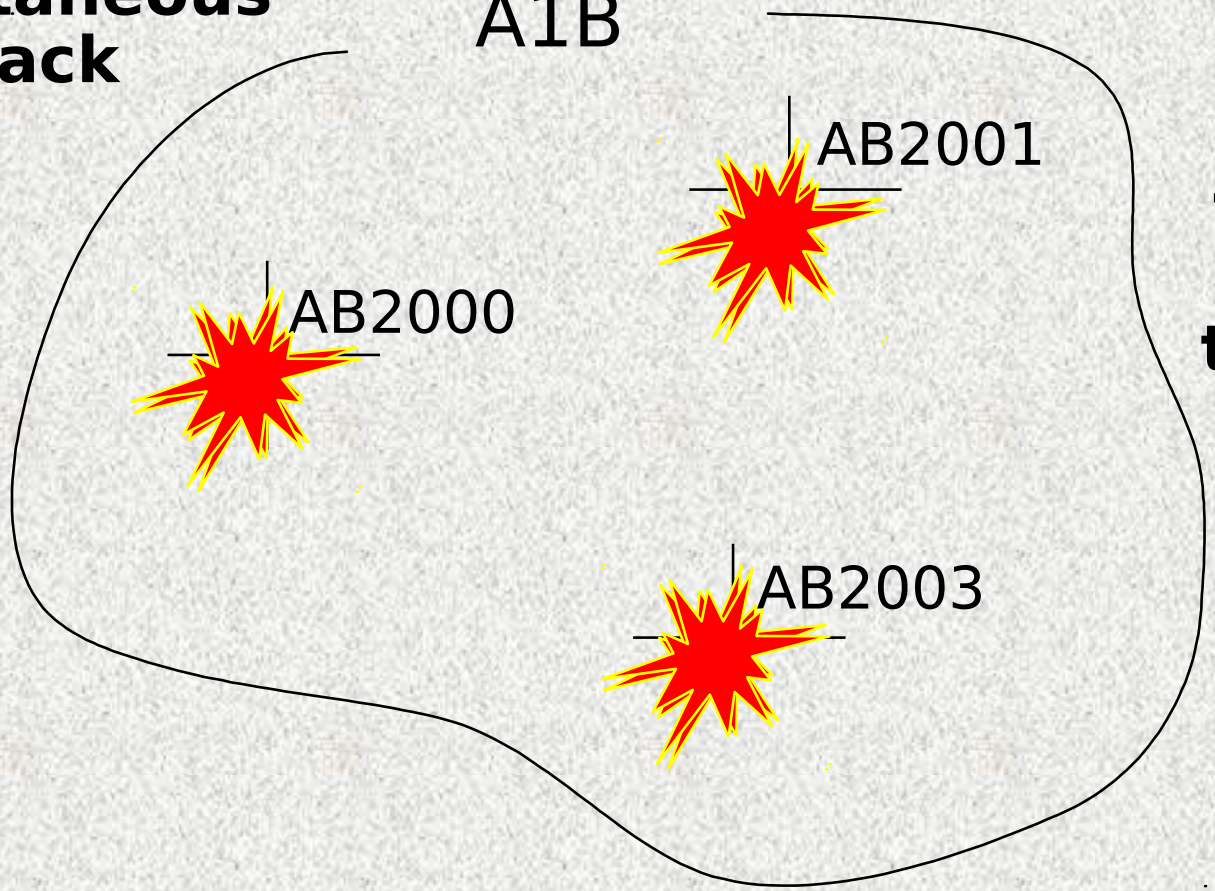
FINAL PROTECTIVE FIRE

- **Immediately available.**
- **Prearranged barrier of fire.**
- **Priority target.**



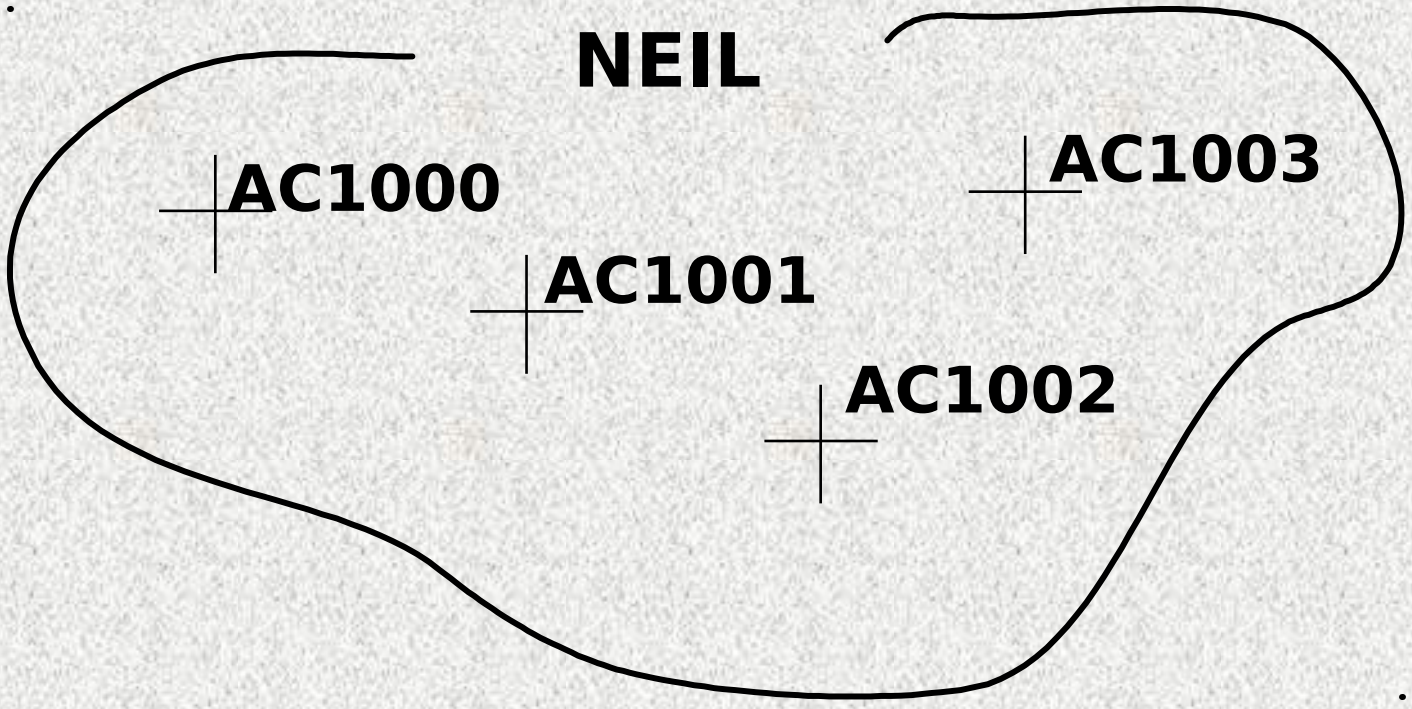
GROUP OF TARGETS

Simultaneous Attack



Two or more targets

SERIES OF TARGETS



Fired in a predetermined time sequence

SUMMARY

- Mission of field artillery.
- Roles of field artillery.
- Fire support organization.
- Ammunition.
- Artillery resources.
- Radars.
- Support relationships.
- Target types.